III

ABSORB THE MASTER'S POWER: THE MENTOR DYNAMIC

Life is short, and your time for learning and creativity is limited. Without any guidance, you can waste valuable years trying to gain knowledge and practice from various sources. Instead, you must follow the example set by Masters throughout the ages and find the proper mentor. The mentor-protégé relationship is the most efficient and productive form of learning. The right mentors know where to focus your attention and how to challenge you. Their knowledge and experience become yours. They provide immediate and realistic feedback on your work, so you can improve more rapidly. Through an intense person-to-person interaction, you absorb a way of thinking that contains great power and can be adapted to your individual spirit. Choose the mentor who best fits your needs and connects to your Life's Task. Once you have internalized their knowledge, you must move on and never remain in their shadow. Your goal is always to surpass your mentors in mastery and brilliance.

THE ALCHEMY OF KNOWLEDGE

Growing up amid poverty in London, it seemed that the fate of Michael Faraday (1791–1867) was pretty much sealed for him at birth—he would either follow in his father's footsteps and become a blacksmith, or he would pursue some other manual trade. His options were severely limited by his circumstances. His parents had ten children to feed and support. The father worked sporadically because of illness, and the family needed additional income. The parents waited anxiously for the day when young Faraday would turn twelve and could get a job, or begin some kind of apprenticeship.

There was one trait, however, that marked him as different and was potentially troubling—he had an extremely active mind, one that was perhaps unsuited for a career that would entail mostly physical labor. Some of his mental restlessness was inspired by the peculiar religion his family belonged to—they were Sandemanians, a sect of Christianity. Its adherents believed that God's presence was manifested in every living thing and every natural phenomenon. By communing with God on a daily basis and getting as inwardly close to him as possible, they could see and feel his presence everywhere in the world.

Young Faraday was steeped in this philosophy. When he was not doing errands and chores for his mother, he would wander the streets of central London, observing the world around him with utmost intensity. Nature, it seemed to him, was full of secrets that he wanted to ponder and unravel. Because he was taught that the divine presence was everywhere, everything interested him, and his curiosity was limitless. He would ask endless questions of his parents, or anyone he could find, about plants or minerals or any seemingly inexplicable occurrence in nature. He seemed hungry for knowledge and frustrated by his lack of means to get it.

One day he wandered into a nearby shop that bound and sold books. The sight of so many shiny books on the shelves astounded him. His own schooling had been minimal, and he had really only known one book in his life, the Bible. The Sandemanians believed that the Scripture was the living embodiment of the Lord's will, and contained something of his presence. To Faraday this meant that the printed words of the Bible had a kind of magical power. He imagined that each of the books in this shop opened up different worlds of knowledge, a form of magic in its own right.

The owner of the shop, George Riebau, was instantly charmed by the young man's reverence for his books. He had never met someone quite so intense at

such a young age. He encouraged him to return, and soon Faraday began to frequent the shop. To help Faraday's family, Riebau gave him a job as a delivery boy. Impressed with his work ethic, he invited him to join the shop itself as an apprentice bookbinder. Faraday happily accepted, and in 1805 he began his seven-year apprenticeship.

In the initial months of the job, surrounded by all these books, the young man could hardly believe his good fortune—new books were rare commodities in those days, luxury items for the well-to-do. Not even a public library contained what could be found in Riebau's shop. The owner encouraged him to read whatever he liked in his off-hours, and Faraday obliged by devouring almost every single book that passed through his hands. One evening he read an encyclopedia passage on the most recent discoveries in electricity, and he suddenly felt as if he had found his calling in life. Here was a phenomenon that was invisible to the eye, but that could be revealed and measured through experiments. This process of uncovering nature's secrets through experiment enthralled him. Science, it seemed to him, was a great quest to unravel the mysteries of Creation itself. Somehow, he would transform himself into a scientist.

This was not a realistic goal on his part and he knew it. In England at the time, access to laboratories and to science as a career was only open to those with a university education, which meant those from the upper classes. How could a bookbinder's apprentice even dream of overcoming such odds? Even if he had the energy and desire to attempt it, he had no teachers, no guidance, no structure or method to his studies. Then in 1809 a book came into the shop that finally gave him some hope. It was called *Improvement of the Mind*—a self-help guide written by Reverend Isaac Watts, first published in 1741. The book revealed a system of learning and improving your lot in life, no matter your social class. It prescribed courses of action that anyone could follow, and it promised results. Faraday read it over and over, carrying it with him wherever he went.

He followed the book's advice to the letter. For Watts, learning had to be an active process. He recommended not just reading about scientific discoveries, but actually re-creating the experiments that led to them. And so, with Riebau's blessing, Faraday began a series of basic experiments in electricity and chemistry in the back room of the shop. Watts advocated the importance of having teachers and not just learning from books. Faraday dutifully began to attend the numerous lectures on science that were popular in London at the time. Watts advocated not just listening to lectures but taking detailed notes, then reworking the notes themselves—all of this imprinting the knowledge deeper in

the brain. Faraday would take this even further.

Attending the lectures of the popular scientist John Tatum, each week on a different subject, he would note down the most important words and concepts, quickly sketch out the various instruments Tatum used, and diagram the experiments. Over the next few days he would expand the notes into sentences, and then into an entire chapter on the subject, elaborately sketched and narrated. In the course of a year this added up to a thick scientific encyclopedia he had created on his own. His knowledge of science had grown by leaps and bounds, and had assumed a kind of organizational shape modeled on his notes.

One day, Monsieur Riebau showed this rather impressive collection of notes to a customer named William Dance, a member of the prestigious Royal Institution, an organization that sought to promote the latest advances in science. Thumbing through Faraday's chapters, Dance was astounded at how clearly and concisely he had summarized complicated topics. He decided to invite the young man to attend a series of lectures by the renowned and recently knighted chemist Humphry Davy, to be given at the Royal Institution where Davy was director of the chemistry laboratory.

The lectures had been sold out well in advance and this was a rare privilege for a young man of Faraday's background, but for him it was much more fateful than that. Davy was the preeminent chemist of his time; he had made numerous discoveries and was advancing the new field of electrochemistry. His experiments with various gases and chemicals were highly dangerous and had led to numerous accidents. This only added to his reputation as a fearless warrior for science. His lectures were events—he had a flair for the dramatic, performing clever experiments before a dazzled audience. He came from a modest background and had raised himself to the heights of science, having gained the attention of some valuable mentors. To Faraday, Davy was the only living scientist he could model himself after, considering Davy's lack of any solid formal education.

Arriving early each time and gaining the closest seat he could find, he soaked up every aspect of Davy's lectures, taking the most detailed notes he had ever attempted. These lectures had a different effect upon Faraday than others he had attended. He was inspired and yet he also could not help but feel somewhat dejected. After all of these years of studying on his own, he had managed to expand his knowledge of science and of the natural world. But science does not consist of the accumulation of information. It is a way of thinking, of approaching problems. The scientific spirit is creative—Faraday could feel it in Davy's presence. As an amateur scientist looking at the field from the outside, his knowledge was one-dimensional and would lead nowhere. He needed to

move to the inside, where he could gain practical, hands-on experience, become part of the community and learn how to *think* like a scientist. And to move closer to this scientific spirit and absorb its essence, he would need a mentor.

This seemed like an impossible quest, but with his apprenticeship coming to an end, and facing the prospect of being a bookbinder for life, Faraday went into desperation mode. He wrote letters to the president of the Royal Society and applied for the most menial jobs in any kind of laboratory. He was relentless, and yet months went by with no results. Then one day, out of the blue, he received a message from Humphry Davy's office. The chemist had been blinded by yet another explosion in his laboratory at the Royal Institution, and the condition would last for several days. During this time he needed a personal assistant to take notes and organize his materials. Mr. Dance, a good friend of Davy's, had recommended young Faraday for the job.

There seemed something fateful, even magical, in this occurrence. Faraday would have to make the most of it, do whatever he could to impress the great chemist. Awestruck to be in Davy's presence, Faraday listened with utmost intensity to every one of his instructions and did more than was asked for. When Davy, however, had recovered his sight, he thanked Faraday for his work but made it clear that the Royal Institution already had a laboratory assistant and there were simply no openings for him on any level.

Faraday felt despondent, but he was not ready to give up; he would not let this be the end. Only a few days in Davy's presence had revealed so many learning possibilities. Davy liked to talk about his ideas as they occurred to him and gain feedback from anyone around him. Discussing with Faraday one experiment he was planning afforded the young man a glimpse into how his mind worked, and it was fascinating. Davy would be the ultimate mentor, and Faraday determined that he would have to make this happen. He went back to the notes he had taken on Davy's lectures. He worked them into a beautifully organized booklet, carefully handwritten, and full of sketches and diagrams. He sent this off to Davy as a gift. He then wrote to him a few weeks later, reminding Davy about the experiment he had mentioned but had probably forgotten about —Davy was notoriously absentminded. Faraday heard nothing. But then one day, in February 1813, he was suddenly summoned to the Royal Institution.

That same morning the Institution's laboratory assistant had been fired for insubordination. They needed to replace him immediately, and Davy had recommended young Faraday. The job mostly involved cleaning bottles and equipment, sweeping, and lighting fireplaces. The pay was low, considerably lower than what he could gain as a bookbinder, but Faraday, hardly believing his good fortune, accepted on the spot.

His education was so rapid it shocked him; it was nothing like the progress he had made on his own. Under his mentor's supervision, he learned how to prepare Davy's chemical mixtures, including some of the more explosive varieties. He was taught the rudiments of chemical analysis from perhaps the greatest living practitioner of the art. His responsibilities began to grow, and he was given access to the lab for his own experiments. He worked night and day to bring a much-needed order to the laboratory and its shelves. And slowly, their relationship deepened—clearly Davy saw him as a younger version of himself.

That summer Davy prepared to go on an extended tour of Europe, and invited Faraday to come along as his laboratory assistant and valet. Although Faraday did not relish the thought of acting as a personal servant, the chance to meet some of Europe's most preeminent scientists and work so closely with Davy on his experiments (he traveled with a kind of portable laboratory) was too much to pass up. It was best to be around him as much as possible and soak up his knowledge, his whole way of thinking.

During the trip, Faraday assisted Davy on a particular experiment that would leave a lasting impression on him. The exact chemical composition of diamonds had long been in dispute. They appeared to be composed of carbon. But how could something so beautiful be made of exactly the same substance as charcoal? There had to be more to its chemical composition, but there was no known way to divide a diamond into its constituent elements. It was a problem that had baffled many scientists. Davy had long entertained the radical idea that it was not the elements themselves that determined the properties of things. Perhaps charcoal and diamonds had precisely the same chemical composition, but it was changes in their underlying molecular structure that determined their form. This was a much more dynamic view of nature, but Davy had no way to prove this until suddenly, traveling through France, an idea for the perfect experiment came to him.

After being reminded that one of the most powerful lenses of the time resided at the Accademia del Cimento in Florence, Davy made a detour there. Gaining permission to use the lens, he placed a diamond in a tiny glass globe containing pure oxygen and used the lens to focus intense sunlight on the globe until the diamond completely evaporated. Inside the globe, all that remained of the diamond was carbon dioxide gas, proving that it was indeed composed of pure carbon. Therefore, what turned carbon into either charcoal or a diamond *must* involve a change in the underlying molecular structure. Nothing else could explain the results of his experiment. What impressed Faraday was the thought process that went into this. From a simple speculation, Davy found his way to the one experiment that would *physically* demonstrate his idea by excluding all

other possible explanations. This was a highly creative way of thinking, and it was the source of Davy's power as a chemist.

On his return to the Royal Institution, Faraday was given a pay increase and a new title—Assistant and Superintendent of the Apparatus and Mineralogical Collection. And soon a pattern developed. Davy liked to spend most of his time on the road. Trusting Faraday's growing skills, he would send back to him all kinds of mineral samples to analyze. Davy had slowly grown dependent on his assistant; in letters to Faraday he praised him as one of the best analytic chemists he knew—he had trained him well. But by the year 1821, Faraday had to confront an unpleasant reality: Davy was keeping him under his thumb. After eight years of an intense apprenticeship, he was now an accomplished chemist in his own right, with expanding knowledge of other sciences. He was doing independent research, but Davy was still treating him as an assistant, making him send packets of dead flies for his fishing lures and assigning him other menial tasks.

It was Davy who had rescued him from the drudgery of the bookbinding business. He owed him everything. But Faraday was now thirty years old, and if he were not allowed soon enough to declare his independence, his most creative years would be wasted as a laboratory assistant. To leave on bad terms, however, would ruin his name in the scientific community, especially considering his own lack of reputation. Then, finally, Faraday found a chance to separate himself from his overbearing mentor, and he exploited this opportunity to the maximum.

Scientists throughout Europe were making discoveries about the relationship between electricity and magnetism, but the effect they had on each other was strange—creating a movement that was not linear and direct, but apparently more circular. Nothing in nature was quite like this. How to reveal the exact shape of this effect or movement in an experiment became the rage, and soon Davy got involved. Working with a fellow scientist named William Hyde Wollaston, they proposed the idea that the movement created by electromagnetism was more like a spiral. Involving Faraday in their experiments, they devised a way to break up the movement into small increments that could be measured. Once this was all added up, it would show the spiral motion.

At about the same time, Faraday was asked by a close friend to write a review of all that was known about electromagnetism for an established journal, and so he began a rigorous study of the field. Thinking like his mentor, he speculated that there must be a way to physically demonstrate the motion created by electromagnetism in a continual fashion, so that no one could dispute the results. One night in September 1821 he had a vision of just such an experiment, and he put it into practice. With a bar magnet secured upright in a cup of liquid

mercury (a metal that conducts electricity), Faraday placed a suspended wire, buoyed by a cork, in the mercury. When the wire was charged with electricity, the cork moved around the magnet in a precise conical path. The reverse experiment (with the wire secured in the water) revealed the same pattern.

This was the first time in history that electricity had been used to generate continual motion, the precursor to all electric motors. The experiment was so simple and yet only Faraday had seen it so clearly. It revealed a way of thinking that was very much the product of Davy's tutelage. Feeling the weight of years of poverty, crushed expectations, and servitude lifting off of him, he danced around the laboratory. This would be the discovery that would free him at last. Excited about what he had done, he rushed to have his results published.

In his haste to get his report out, however, Faraday had forgotten to mention the research done by Wollaston and Davy. Soon enough, the rumor spread that Faraday had actually plagiarized their work. Realizing his mistake, Faraday met with Wollaston and showed him how he had reached his results independent of anyone else's work. Wollaston agreed and let the matter drop. But the rumors continued, and soon it became clear that the source of them was Davy himself. He refused to accept Faraday's explanation and no one knew quite why. When Faraday was nominated to the Royal Society because of his discovery, it was Davy, as president, who tried to block it. A year later, when Faraday made yet another important discovery, Davy claimed partial credit for it. He seemed to believe that he had created Faraday from nothing and so was responsible for everything he did.

Faraday had seen enough—their relationship was essentially over. He would never correspond with or see him again. Now having authority within the scientific community, Faraday could do as he pleased. His coming experiments would soon pave the way for all of the most important advances in electrical energy, and for the field theories that would revolutionize science in the twentieth century. He would go on to become one of history's greatest practitioners of experimental science, far outshining the fame of his one-time mentor.

KEYS TO MASTERY

At table, the ladies praised a portrait by a young painter. "What is most surprising," they added, "he has learned everything by himself." This could be seen particularly in the hands, which were not correctly and artistically drawn. "We see," said Goethe, "that the young man has talent; however, you should not praise, but rather blame him, for learning everything by himself. A man of talent is not born to be left to himself, but to devote himself to art and good masters who will make something of him."

—JOHANN PETER ECKERMANN, *CONVERSATIONS WITH GOETHE*

In the past, people of power had an aura of authority that was very real. Some of this aura emanated from their accomplishments, and some of it from the position they occupied—being a member of the aristocracy or a religious elite. This aura had a definite effect and could be felt; it caused people to respect and worship those who possessed it. Over the centuries, however, the slow process of democratization has worn away this aura of authority in all of its guises, to the point today of almost nonexistence.

We feel, rightly so, that no one should be admired or worshipped merely for the position they occupy, particularly if it comes from connections or a privileged background. But this attitude carries over to people who have reached their position mostly through their own accomplishments. We live in a culture that likes to criticize and debunk any form of authority, to point out the weaknesses of those in power. If we feel any aura, it is in the presence of celebrities and their seductive personalities. Some of this skeptical spirit toward authority is healthy, particularly in relation to politics, but when it comes to learning and the Apprenticeship Phase, it presents a problem.

To learn requires a sense of humility. We must admit that there are people out there who know our field much more deeply than we do. Their superiority is not a function of natural talent or privilege, but rather of time and experience. Their authority in the field is not based on politics or trickery. It is very real. But if we are not comfortable with this fact, if we feel in general mistrustful of any kind of authority, we will succumb to the belief that we can just as easily learn something on our own, that being self-taught is more authentic. We might justify this attitude as a sign of our independence, but in fact it stems from basic insecurity. We feel, perhaps unconsciously, that learning from Masters and submitting to their authority is somehow an indictment of our own natural ability. Even if we have teachers in our lives, we tend not to pay full attention to their advice, often preferring to do things our own way. In fact, we come to believe that being critical of Masters or teachers is somehow a sign of our intelligence, and that being a submissive pupil is a sign of weakness.

Understand: all that should concern you in the early stages of your career is acquiring practical knowledge in the most efficient manner possible. For this purpose, during the Apprenticeship Phase you will need mentors whose authority you recognize and to whom you submit. Your admission of need does not say anything essential about you, but only about your temporary condition of weakness, which your mentor will help you overcome.

The reason you require a mentor is simple: Life is short; you have only so much time and so much energy to expend. Your most creative years are generally in your late twenties and on into your forties. You can learn what you need through books, your own practice, and occasional advice from others, but the process is hit-and-miss. The information in books is not tailored to your circumstances and individuality; it tends to be somewhat abstract. When you are young and have less experience of the world, this abstract knowledge is hard to put into practice. You can learn from your experiences, but it can often take years to fully understand the meaning of what has happened. It is always possible to practice on your own, but you will not receive enough focused feedback. You can often gain a self-directed apprenticeship in many fields, but this could take ten years, maybe more.

Mentors do not give you a shortcut, but they streamline the process. They invariably had their own great mentors, giving them a richer and deeper knowledge of their field. Their ensuing years of experience taught them invaluable lessons and strategies for learning. Their knowledge and experience become yours; they can direct you away from unnecessary side paths or errors. They observe you at work and provide real-time feedback, making your practice more time efficient. Their advice is tailored to your circumstances and your needs. Working closely with them, you absorb the essence of their creative spirit, which you can now adapt in your own way. What took you ten years on your own could have been done in five with proper direction.

There is more to this than just time saved. When we learn something in a concentrated manner it has added value. We experience fewer distractions. What we learn is internalized more deeply because of the intensity of our focus and practice. Our own ideas and development flourish more naturally in this shortened time frame. Having an efficient apprenticeship, we can make the most of our youthful energy and our creative potential.

What makes the mentor-protégé dynamic so intense and so productive is the emotional quality of the relationship. By nature, mentors feel emotionally invested in your education. This can be for several reasons: perhaps they like you, or see in you a younger version of themselves, and can relive their own youth through you; perhaps they recognize in you a special talent that will give them pleasure to cultivate; perhaps you have something important to offer them, mostly your youthful energy and willingness to work hard. Being useful to them can build a powerful emotional connection to you over time. On your part, you also feel emotionally drawn to them—admiration for their achievements, a desire to model yourself after them, and so on. Mentors find this immensely flattering.

With this two-way emotional connection you both open up to each other in a way that goes beyond the usual teacher-student dynamic. When you admire people, you become more susceptible to absorbing and imitating everything they do. You pay deeper attention. Your mirror neurons are more engaged, allowing for learning that involves more than the superficial transmission of knowledge, but also includes a style and way of thinking that is often powerful. On the other side, because of the emotional bond, mentors will tend to divulge more of their secrets than they would to others. You must not be afraid of this emotional component to the relationship. It is precisely what makes you learn more deeply and efficiently.

Think of it this way: the process of learning resembles the medieval practice of alchemy. In alchemy, the goal was to find a way to transform base metals or stones into gold. To effect this, alchemists searched for what was known as the philosopher's stone—a substance that would make dead stones or metals come alive and organically change their chemical composition into gold. Although the philosopher's stone was never discovered, it has profound relevance as a metaphor. The knowledge that you need to become a Master exists out there in the world—it is like a base metal or dead stone. This knowledge needs to be heated up and come alive within you, transforming itself into something active and relevant to your circumstances. The mentor is like the philosopher's stone—through direct interaction with someone of experience, you are able to quickly and efficiently heat up and animate this knowledge, turning it into something like gold.

The story of Michael Faraday is the ultimate illustration of this alchemical process. His life seemed to progress almost through magic—falling into the one job where he could read books, learn about science, and impress exactly the right person with his notes, leading to a connection to the ultimate mentor, Humphry Davy. But there was a logic behind all of this apparent magic and good fortune. As a young man he possessed an intense energy and hunger for knowledge. A kind of inner radar directed him to the one bookshop in the area. Although it was pure luck that the book *Improvement of the Mind* fell into his hands, it took someone with such focus to recognize immediately its worth and exploit it fully. Under Watt's guidance, his knowledge became more practical. But that same radar that directed him to the shop and to this book now pointed him somewhere else. The knowledge he had gained was still too diffused and disconnected. He intuited that the only way to transform it into something useful was to find a living mentor.

Once he secured Davy as his man, he threw himself into the relationship with the same focus that he had brought to everything else. Serving under Davy,

Faraday learned all of the secrets of chemistry and electricity that the Master had gleaned throughout his life. He practiced with these ideas in the laboratory—mixing chemicals for Davy and doing his own experiments. In the process, he absorbed Davy's patterns of thinking, of approaching chemical analysis and experimentation. His knowledge became increasingly active.

After eight years, this interactive dynamic yielded one of the great discoveries of science—the uncovering of the secret of electromagnetism. Faraday's own studies and what he had learned from Davy became transformed into creative energy, a form of gold. If he had stayed on the path of self-apprenticeship out of fear or insecurity, he would have remained a bookbinder—miserable and unfulfilled. Through the alchemy of intense mentorship he transformed himself into one of the most creative scientists in history.

Certainly religion played an important role in Faraday's education. Because he believed that everything in the universe was alive with God's presence, he tended to animate whatever he encountered, including the books he read and the phenomenon of electricity itself. Since he saw these things as alive, he engaged with them on a deeper level, which intensified the learning process. This way of looking at the world, however, transcends religion and contains great power for all of us in our apprenticeships. We too can see the subjects that we study as possessing a kind of vital spirit with which we must interact, and which we must understand from the inside out. As with Faraday, this attitude will intensify our level of engagement with what we are learning.

To initially entice the right Master to serve as your mentor, you will want to mix in a strong element of self-interest. You have something tangible and practical to offer them, in addition to your youth and energy. Before he had ever met him, Davy was aware of Faraday's work ethic and organizational skills. That alone made him a desirable assistant. Considering this, you may not want to go in search of mentors until you have acquired some elementary skills and discipline that you can rely upon to interest them.

Almost all Masters and people of power suffer from too many demands on their time and too much information to absorb. If you can demonstrate the ability to help them organize themselves on these fronts to a degree that others cannot, it will be much easier to get their attention and interest them in the relationship. Do not shy away from anything menial or secretarial. You want person-to-person access, however you can get it. Once you establish a relationship, you will find other ways to continually hook them through their self-interest. Try to see the world through their eyes and ask the simple question of what it is they need most. Keeping their self-interest involved will only enhance any emotional connection they feel toward you.

If you work on yourself first, as Faraday did, developing a solid work ethic and organizational skills, eventually the right teacher will appear in your life. Word will spread through the proper channels of your efficiency and your hunger to learn, and opportunities will come your way. In any event, you should not feel timid in approaching Masters, no matter how elevated their position. You will be frequently surprised at how open they can be to serving as a mentor, if the fit is right and you have something to offer. The ability to transfer their experience and knowledge to someone younger often provides them with a great pleasure, akin to parenting.

The best mentors are often those who have wide knowledge and experience, and are not overly specialized in their field—they can train you to think on a higher level, and to make connections between different forms of knowledge. The paradigm for this is the Aristotle–Alexander the Great relationship. Philip II, Alexander's father and king of Macedonia, chose Aristotle to mentor his thirteen-year-old son because the philosopher had learned and mastered so many different fields. He could thus impart to Alexander an overall love of learning, and teach him how to think and reason in any kind of situation—the greatest skill of all. This ended up working to perfection. Alexander was able to effectively apply the reasoning skills he had gained from Aristotle to politics and warfare. To the end of his life he maintained an intense curiosity for any field of knowledge, and would always gather about him experts he could learn from. Aristotle had imparted a form of wisdom that played a key role in Alexander's success.

You will want as much personal interaction with the mentor as possible. A virtual relationship is never enough. There are cues and subtle aspects you can only pick up through a person-to-person interaction—such as a way of doing things that has evolved through much experience. These patterns of action are hard to put into words, and can only be absorbed through much personal exposure. In crafts or in sports this is more obvious. Tennis instructors, for example, can only reveal many secrets of their skills by demonstrating things before their pupils' eyes. Instructors may not in fact be completely conscious of what makes their backhand so effective, but in watching them in action pupils can pick up the pattern and motion, exploiting the power of mirror neurons. But this process of absorption is also relevant to nonmanual skills. It was only through constant exposure to Davy's thought process that Faraday understood the power of finding the crucial experiment to demonstrate an idea, something he would adapt later on with great success.

As the relationship progresses you can make this absorption process more conscious and direct, questioning them about the principles underlying their way

of doing things. If you are clever, you can be a kind of midwife, getting them to analyze their own creativity for you, and mining all kinds of rich ideas in the process. They are often grateful for the opportunity to reveal the inner workings of their power, particularly to someone they do not perceive as a threat.

Although one mentor at a time is best, it is not always possible to find the perfect one. In such a case, an alternate strategy is to find several mentors in your immediate environment, each one filling strategic gaps in your knowledge and experience. Having more than one mentor has side benefits, giving you several connections and important allies to rely upon later on. Similarly, if your circumstances limit your contacts, books can serve as temporary mentors, as *The Improvement of the Mind* did for Faraday. In such a case you will want to convert such books and writers into living mentors as much as possible. You personalize their voice, interact with the material, taking notes or writing in the margins. You analyze what they write and try to make it come alive—the spirit and not just the letter of their work.

In a looser sense, a figure from the past or present can serve as an ideal, someone to model yourself after. Through much research and some imagination on your part, you turn them into a living presence. You ask yourself—what would they do in this situation or that? Countless generals have used Napoleon Bonaparte for just such a purpose.

Mentors have their own strengths and weaknesses. The good ones allow you to develop your own style and then to leave them when the time is right. Such types can remain lifelong friends and allies. But often the opposite will occur. They grow dependent on your services and want to keep you indentured. They envy your youth and unconsciously hinder you, or become overcritical. You must be aware of this as it develops. Your goal is to get as much out of them as possible, but at a certain point you may pay a price if you stay too long and let them subvert your confidence. Your submitting to their authority is by no means unconditional, and in fact your goal all along is eventually to find your way to independence, having internalized and adapted their wisdom.

In this respect, the mentor relationship often replays elements from our childhood. Although a mentor can be a man or a woman, he or she often assumes the form of a father figure—there to guide and help us, but sometimes trying to control too much and plot our life for us. He may take any attempt at independence, even later in the relationship, as a personal assault on his authority. You must not allow yourself to feel any guilt when the time comes to assert yourself. Instead, as Faraday did, you should feel resentful and even angry about his desire to hold you back, using such emotions to help you leave him. It is often best to set up this move earlier on so that you are emotionally prepared

to make it. As the relationship progresses, you can begin to slightly distance yourself from the mentor, perhaps taking note of some of his weaknesses or character flaws, or even finding fault with his most cherished beliefs. Establishing your differences with the mentor is an important part of your self-development, whether he is of the good or bad parent type.

In Spanish they say *al maestro cuchillada*—to the Master goes the knife. It is a fencing expression, referring to the moment when the young and agile pupil becomes skillful enough to cut his Master. But this also refers to the fate of most mentors who inevitably experience the rebellion of their protégés, like the cut from a sword. In our culture, we tend to venerate those who seem rebellious or at least strike the pose. But rebellion has no meaning or power if it occurs without something solid and real to rebel against. The mentor, or father figure, gives you just such a standard from which you can deviate and establish your own identity. You internalize the important and relevant parts of their knowledge, and you apply the knife to what has no bearing on your life. It is the dynamic of changing generations, and sometimes the father figure has to be killed in order for the sons and daughters to have space to discover themselves.

In any event, you will probably have several mentors in your life, like stepping-stones along the way to mastery. At each phase of life you must find the appropriate teachers, getting what you want out of them, moving on, and feeling no shame for this. It is the path your own mentor probably took and it is the way of the world.

STRATEGIES FOR DEEPENING THE MENTOR DYNAMIC

One repays a teacher badly if one remains only a pupil.

—FRIEDRICH NIETZSCHE

Although you must submit to the authority of mentors in order to learn from and absorb their power to the highest degree, this does not mean you remain passive in the process. At certain critical points, you can set and determine the dynamic, personalize it to suit your purposes. The following four strategies are designed to help you exploit the relationship to the fullest and transform the knowledge you gain into creative energy.

1. Choose the mentor according to your needs and inclinations

In 1888 the twenty-year-old Frank Lloyd Wright was an apprentice draftsman at the prestigious Chicago firm of Joseph Lyman Silsbee. He had been there a year and was learning much about the business, but he was getting restless. In his mind he could already envision a totally new style of architecture that would revolutionize the field, but he lacked the experience to set up his own practice. Silsbee was a shrewd businessman who saw that his fortune was tied to staying true to the Victorian style of design that was popular with his clients. Wright cringed at what he was being asked to draw; he was learning antiquated design principles that offended him.

Then, out of the blue, he heard that the great Chicago architect Louis Sullivan was looking for a draftsman to help finish the drawings for a particular building. It would be dangerous to leave Silsbee after such a short time and burn his bridge there, but working for Sullivan would be infinitely more stimulating for his personal development as an architect. Sullivan's firm was at the forefront of designing skyscrapers, utilizing the latest advances in materials and technology.

Wright went on a charm offensive to secure the position. He managed to get a personal interview and showed Sullivan some of the more interesting drawings he had done on his own; he engaged him in a conversation about art and philosophy, knowing Sullivan's own aesthetic predilections. Sullivan hired him for the job, and a few months later made him an apprentice draftsman in his firm. Wright cultivated a personal relationship with him, eagerly playing the role of the son that Sullivan had never had. With his talent and Sullivan's blessing, he quickly rose to the position of head draftsman in the firm. Wright became, as he put it, "the pencil in Sullivan's hand." In 1893 Sullivan fired him for moonlighting, but by then Wright had learned everything he could and was more than prepared to step out on his own. Sullivan had given him in those five years an education in modern architecture that no one else could have provided.

In 1906 Carl Jung was a promising thirty-one-year-old psychiatrist, renowned for his work in experimental psychology and holding an important position at the famous Burghölzli Psychiatric Hospital in Zurich. But despite the apparent success in his life, he felt insecure. He believed that his interest in the occult and strange psychic phenomena was a weakness he needed to work through. He was frustrated that his treatment of patients was often not effective. He worried that his work had no legitimacy and that he lacked a certain rigor. He began to

correspond with the founder of the psychoanalytic field, Sigmund Freud, fifty-one years old at the time. Jung was ambivalent about Freud—he admired, even worshipped him as a pioneer in the field, but he did not like his emphasis on sex as the determining factor in neurosis. Perhaps his aversion to this aspect of Freudian psychology stemmed from his own prejudices or ignorance, and needed to be overcome by talking it out. In their correspondence they quickly developed a good rapport, and Jung was able to question the Master about matters of psychology he did not fully understand.

A year later they finally met in Vienna, and talked nonstop for thirteen hours. The younger man charmed Freud—he was so much more creative than his other acolytes. He could serve as his successor in the psychoanalytic movement. For Jung, Freud could be the father figure and mentor he so desperately needed—a grounding influence. They traveled together to the United States, saw each other on frequent visits, and corresponded incessantly. But some five years into the relationship, Jung's initial ambivalence returned. He began to find Freud rather dictatorial. He chafed at the idea of having to follow Freudian dogma. He now clearly understood why he had initially disagreed with the emphasis on sexuality as the root of all neuroses.

By 1913 they had a definitive break, Jung forever banished from Freud's inner circle. But through this relationship, Jung had worked out all of his doubts and sharpened certain core ideas about human psychology. In the end, the struggle had strengthened his sense of identity. Without this mentorship, he would have never come to such a clear resolution and been capable of starting his own rival school of psychoanalysis.

Sometime in the late 1960s, V. S. Ramachandran, a medical student at a college in Madras, came upon a book called *Eye and Brain*, written by an eminent professor of neuropsychology, Richard Gregory. (For more on Ramachandran's early years, see here.) The book excited him—the style of writing, the anecdotes, the provocative experiments he recounted. Inspired by the book, Ramachandran did his own experiments on optics, and soon realized that he was better suited for the field than medicine. In 1974 he was admitted into the PhD Program at Cambridge University, in visual perception.

Ramachandran had been raised on stories of the great English scientists of the nineteenth century, and the almost romantic quest for truth that science seemed to represent. He loved the part that speculation played in the great theories and discoveries of men such as Faraday and Darwin. He imagined it would be somewhat similar at Cambridge, but to his surprise the students and

professors tended to treat science as a kind of nine-to-five job; it was a competitive, cutthroat, almost corporate environment. He began to feel gloomy and alone in a strange country.

Then one day Richard Gregory himself, a professor at Bristol University, came to Cambridge to give a lecture. Ramachandran was mesmerized—it was like something right out of the pages of Humphry Davy. Gregory performed thought-provoking demonstrations of his ideas on stage; he had a flair for drama and a great sense of humor. This is what science should be like, Ramachandran thought. He went up after the talk and introduced himself. They had an instant rapport. He mentioned to Gregory an optical experiment he had been pondering, and the professor was intrigued. He invited Ramachandran to visit Bristol and to stay in his home, where they could try out his idea together. Ramachandran took up the offer, and from the moment he saw Gregory's house he knew he had found his mentor—it was like something out of Sherlock Holmes, full of Victorian instruments, fossils, and skeletons. Gregory was precisely the kind of eccentric Ramachandran could identify with. Soon he was commuting to Bristol regularly experiments. He had found a lifelong mentor to inspire and guide him, and over the years he would come to adapt much of Gregory's style of speculation and experiment.

Growing up in Japan in the late 1970s, Yoky Matsuoka felt like an outsider. As discussed in chapter 1 (here), she liked to do things her own way in a country that esteemed social cohesion and conformity above everything else. When she decided to take up tennis seriously at the age of eleven, she used the players John McEnroe and Andre Agassi as her role models, consummate rebels in what had been a very genteel sport. Later, when she moved to the United States and began attending university, she brought with her the same need to go her own way in whatever she did. If there was a field no one was studying, it excited her. Following this instinct she got into the then-esoteric field of robotics, and was admitted to the PhD program at MIT.

There, for the first time in her life, she met someone of her own temperament—Rodney Brooks, professor of robotics at MIT, and the bad boy of the department. He was bold, taking on the higher-ups in the department and arguing against some of the most entrenched ideas in the field of artificial intelligence. He had developed a completely novel approach to robotics. It excited her that a professor could get away with such an unconventional attitude. She began to spend as much time around him as possible, soaking up his style of thinking, and turning him into her de facto mentor. He was not a teacher who

told you what to do; he let you find your own way, including your own mistakes, but would lend you support when you needed it. This style suited her need for independence. It was only later that she realized how much his ideas had gotten under her skin. Unconsciously following his lead, she would eventually create her own approach to robotics and pioneer a totally new field, known as neurobotics.

The choice of the right mentor is more important than you might imagine. Because so much of her future influence upon you can be deeper than you are consciously aware of, the wrong choice can have a net negative effect upon your journey to mastery. You could end up absorbing conventions and styles that don't fit you and that will confuse you later on. If she is too domineering, you could end up becoming a lifelong imitation of the mentor, instead of a Master in your own right. People often err in this process when they choose someone who seems the most knowledgeable, has a charming personality, or has the most stature in the field—all superficial reasons. Do not simply choose the first possible mentor who crosses your path. Be prepared to put as much thought into it as possible.

In selecting a mentor, you will want to keep in mind your inclinations and Life's Task, the future position you envision for yourself. The mentor you choose should be strategically aligned with this. If your path is in a more revolutionary direction, you will want a mentor who is open, progressive, and not domineering. If your ideal aligns more with a style that is somewhat idiosyncratic, you will want a mentor who will make you feel comfortable with this and help you transform your peculiarities into mastery, instead of trying to squelch them. If, like Jung, you are somewhat confused and ambivalent about your direction, it can be useful to choose someone who can help you gain some clarity about what you want, someone important in the field who might not fit perfectly with your tastes. Sometimes part of what a mentor shows us is something we will want to avoid or actively rebel against. In this latter case, you might initially want to maintain a little more emotional distance than normally recommended, particularly if she is the domineering type. Over time you will see what to absorb and what to reject.

Remember: the Mentor Dynamic replays something of the parental or father-figure dynamic. It is a cliché that you do not get to choose the family you are born into, but you are happily free to choose your mentors. In this case, the right choice can perhaps provide what your parents didn't give you—support,

confidence, direction, space to discover things on your own. Look for mentors who can do that, and beware of falling into the opposite trap—opting for a mentor who resembles one of your parents, including all of his negative traits. You will merely repeat what hampered you in the first place.

2. Gaze deep into the mentor’s mirror

Hakuin Zenji (1685–1769) was born in a village near the town of Hara in Japan, his family on his father’s side coming from an illustrious line of samurai warriors. As a child, Hakuin had the kind of relentless energy that would seem to mark him for a life dedicated to the martial arts. But at around the age of eleven, he heard a priest deliver a sermon about the torments of hell for those who were not careful, and this talk filled the young boy with an intense anguish that nothing could extinguish. All of his tenacious energy was now directed toward doubts about his own worth, and by the age of fourteen he decided that the only way to quell his anxiety was to pursue the religious path and become a priest. He was particularly attracted to Zen Buddhism, having read stories of great Masters in China and Japan overcoming endless obstacles and suffering to reach enlightenment. The idea of passing through a phase of suffering accorded well with his innermost doubts about himself.

At the age of eighteen he was sent to a training center to prepare him for his life as a priest. The method of teaching, however, disappointed him. He had imagined twenty-four-hour sessions of meditation and other ordeals. Instead, he was made to study all kinds of Chinese and Japanese texts. What he read and heard from his instructors did not change him at all. It was merely intellectual knowledge that had little connection to his daily life. His anxieties only increased. He left this temple and began to wander, looking for the mentor who could guide him.

He entered one Zen school after another, in every corner of Japan, and he began to get a clear idea of the state of Zen instruction at that time. It revolved around simple sessions of seated meditation, with little instruction, until finally a giant bell would sound and the monks would hurry to eat or sleep. In their spare time, they would chant for happiness and peace. Zen had turned into one large soporific, designed to lull students into a state of rest and lethargy. It was deemed too invasive and too overbearing to give students any direction; they were supposed to find their own way to enlightenment. Naturally, when given such free rein, they would opt for the easiest path—doing nothing. This trend had spread throughout Japan; monks everywhere had convinced themselves that Zen was easy and simple, and that whatever felt right was right.

Occasionally Hakuin would hear of some school or priest that was creating a stir somewhere, and he would travel to see for himself. In 1708, he spent weeks traveling to reach a temple at a coastal town where just such a provocative priest was making an appearance, but after hearing a few sentences from his lips,

Hakuin felt the same profound boredom and disappointment—quotes from texts, clever stories, all to cover up the deadness of the words. He began to wonder if it was time to give up, if true enlightenment no longer existed. At the temple he met another young monk who was equally disappointed with the talk of the priest. They became friends, and one day the monk mentioned that he had studied for a few days under a strange and completely reclusive Master named Shoju Rojin, who was not like any other teacher he had encountered. He lived in a hard-to-reach village, accepted only a handful of students, and was very demanding. This was all Hakuin needed to hear. He asked the young monk to guide him right away to Shoju.

When he met the Master, he could see something in his eyes that was different from any other priest or teacher. He radiated power and self-mastery; you could read in his expression the pain he had endured to reach his current state. This man had lived and suffered. Hakuin was delighted when Shoju said he would accept him as a pupil, but his excitement soon turned to fear. During their first personal interview, Shoju asked him, “How do you understand the koan (a Zen anecdote designed for instruction) about the Dog and the Buddha-Nature?” “No way to lay a hand or foot on that,” Hakuin replied, imagining that was a clever response, at which point Shoju reached out and grabbed his nose, pushing it with a harsh twist and yelling in his face, “Got a pretty good hand on it there!” He held on tightly for several minutes, giving Hakuin a feeling of utter paralysis.

Over the course of the next few days he endured more and more abuse. Shoju made him feel that all of his studies and traveling had taught him nothing. He could not say or do one right thing. Out of nowhere he would receive a blow or a gob of spit in his face. He began to doubt every element of his previous knowledge, and he lived in complete terror of what Shoju would do next.

Shoju gave him a series of the most difficult koans Hakuin had ever heard to ponder and discuss. He could not make heads or tails of them. His feelings of dejection and demoralization were reaching a breaking point, but knowing that persistence was important, he kept at it night and day. Soon he had doubts about Shoju himself, and entertained thoughts of leaving him in the near future.

One day, feeling particularly agitated, he wandered into a nearby village, and without knowing why or how, he began to contemplate one of the thorniest koans Shoju had given him. Deep in thought, he strayed into the garden of a private house. The woman who lived there yelled at him to leave, but Hakuin seemed oblivious. Thinking he was a madman or a bandit she attacked him with a stick, knocking him hard to the ground. When he came to, minutes later, he suddenly felt different—he had finally penetrated to the core of Shoju’s koan! He understood it from the inside out! It was alive within him! Everything fell

into place and he was certain that he had finally reached enlightenment, the world appearing to him in a totally new guise. He began clapping his hands and screaming with delight. For the first time he felt the weight of all of his anxieties lifted from him.

He ran all the way back to Shoju, who recognized right away what had happened to his pupil. This time the Master was gentle with him, stroking Hakuin's back with his fan. He finally revealed to his pupil his thoughts—from the first time they had met, he had recognized in Hakuin the necessary ingredients for true learning. He was fierce, determined, and hungry for enlightenment. The problem with all students, he said, is that they inevitably *stop* somewhere. They hear an idea and they hold on to it until it becomes dead; they want to flatter themselves that they know the truth. But true Zen never stops, never congeals into such truths. That is why everyone must constantly be pushed to the abyss, starting over and feeling their utter worthlessness as a student. Without suffering and doubts, the mind will come to rest on clichés and stay there, until the spirit dies as well. Not even enlightenment is enough. You must continually start over and challenge yourself.

Shoju had faith that Hakuin would continue in this process because he was tenacious. Zen was dying throughout Japan. He wanted Hakuin to stay with him and serve as his successor. He believed the young man would someday be responsible for reviving the religion. In the end, however, Hakuin could not tame his restlessness. After eight months he left Shoju, certain he would return as soon as he could. But the years went by, and once again he fell into new doubts and anxieties. He wandered from temple to temple, experiencing continual highs and lows.

At the age of forty-one, he finally had his ultimate and deepest moment of enlightenment, bringing with it a mind-set that would not leave him for the rest of his life. At this point, all of the ideas and teachings of Shoju came back to him as if he had heard them yesterday, and he realized that Shoju was the only true Master he had ever known. He wanted to return to thank him, but the Master had died some five years earlier. His way to repay him was to become a teacher himself, keeping alive his Master's teachings. In the end, it was indeed Hakuin who rescued Zen practice from the decay it had fallen into, just as Shoju had predicted.

To reach mastery requires some toughness and a constant connection to reality. As an apprentice, it can be hard for us to challenge ourselves on our own in the

proper way, and to get a clear sense of our own weaknesses. The times that we live in make this even harder. Developing discipline through challenging situations and perhaps suffering along the way are no longer values that are promoted in our culture. People are increasingly reluctant to tell each other the truth about themselves—their weaknesses, their inadequacies, flaws in their work. Even the self-help books designed to set us straight tend to be soft and flattering, telling us what we want to hear—that we are basically good and can get what we want by following a few simple steps. It seems abusive or damaging to people's self-esteem to offer them stern, realistic criticism, to set them tasks that will make them aware of how far they have to go. In fact, this indulgence and fear of hurting people's feelings is far more abusive in the long run. It makes it hard for people to gauge where they are or to develop self-discipline. It makes them unsuited for the rigors of the journey to mastery. It weakens people's will.

Masters are those who by nature have suffered to get to where they are. They have experienced endless criticisms of their work, doubts about their progress, setbacks along the way. They know deep in their bones what is required to get to the creative phase and beyond. As mentors, they alone can gauge the extent of our progress, the weaknesses in our character, the ordeals we must go through to advance. In this day and age, you must get the sharpest dose of reality that is possible from your mentor. You must go in search of it and welcome it. If possible, choose a mentor who is known for supplying this form of tough love. If they shy away from giving it, force them to hold up the mirror that will reflect you as you are. Get them to give you the proper challenges that will reveal your strengths and weaknesses and allow you to gain as much feedback as possible, no matter how hard it might be to take. Accustom yourself to criticism. Confidence is important, but if it is not based on a realistic appraisal of who you are, it is mere grandiosity and smugness. Through the realistic feedback of your mentor you will eventually develop a confidence that is much more substantial and worth possessing.

3. Transfigure their ideas

In 1943 the eminent pianist and teacher Alberto Guerrero accepted a new pupil, a precocious eleven-year-old named Glenn Gould who was unlike any other student he had ever encountered. Glenn had been playing since he was four years old, having been taught by his mother, who was an accomplished piano player in her own right. After a few years under her tutelage, Glenn had surpassed his mother in skill on many levels; he began to argue and correct her; he wanted more challenging work. Guerrero was well known in Toronto, Canada, where the Goulds lived; he was reputed to be very patient, yet also demanding—traits that could serve him well as a teacher for the young Gould, which is why the parents chose him. From the very first session, Guerrero could sense an unusual seriousness and intensity in someone so young. Gould listened with complete attention and could absorb Guerrero's style of playing in a way he had never seen in a pupil. He was a consummate mimic.

Soon, however, Guerrero began to notice some strange traits in his pupil. On one occasion he decided to expand Gould's repertoire, introducing him to the music of Arnold Schoenberg—the great composer of atonal music whose work Guerrero liked to champion. Expecting his pupil to be excited by the newness of the sound, he was surprised instead to see an expression of complete disgust. Gould took the sheet music home with him, but apparently he never practiced the pieces, and Guerrero let the matter drop. Then, a few weeks later, he shared with his teacher some of his own recent compositions—interesting work that was clearly inspired by Schoenberg. Soon after that, he brought in sheet music that he wanted to practice with Guerrero—all atonal music from various composers, including Schoenberg, but not the pieces Guerrero had originally given him. He had obviously been studying the music on his own and had decided he liked it.

It became almost impossible for Guerrero to gauge how Gould would respond to his ideas. For instance, he recommended to his pupils that they learn and memorize a piece by studying it on paper, before ever trying to play it. In this way, it would come alive first in their minds and they would be able to envision it as a whole, instead of merely playing the notes. Gould dutifully followed this advice with a particular composition of Bach's, but when they discussed the structure and concept behind the piece, the young man had his own notions that were rather strange and quite contrary to Guerrero's, which Gould found romantic and quaint. On another occasion Guerrero revealed his idea that it was often best to imagine you were playing a piano piece by Bach as if it were

on a harpsichord. Gould warmed to this idea, then a few months later said that he preferred imagining a different instrument with Bach.

Guerrero's most important ideas revolved around the physical aspects of playing the piano. He had spent years studying human physiology, particularly anything related to the hands and fingers. His goal was to impart in his pupils a relaxed yet powerful style, in which they would gain complete command of the keyboard with fingers that had a lightning touch. He spent hours indoctrinating Gould in his approach, working on the peculiar posture he advocated—a kind of slump or hunch over the keyboard, with all of the action coming from the lower back and hands, the shoulders and arms completely still. He demonstrated this technique endlessly to his pupil. He gave Gould all kinds of unusual exercises he had developed to strengthen the fingers. Gould seemed interested enough, but as with everything, Guerrero had the impression he would soon forget it all and go his own way.

As the years went by, Gould began to argue with his teacher more and more. He found Guerrero's ideas and approach to music too Latin, too mired in another era. Finally, at the age of nineteen, Gould announced that he was going to proceed on his own. He had no more need for a mentor, a fact that Guerrero graciously accepted. It was clear that by now the young man needed to work through his own ideas about music and performing.

Over the years, however, as Gould slowly established himself as one of the greatest pianists who has ever lived, Guerrero began to realize how deeply his former pupil had absorbed all of his ideas. He would read reviews of Gould's performances in which the critic would note how he seemed to play Bach as if it were on the harpsichord, something soon echoed by others. His posture, his way of crouching and leaning over the instrument made him look like an uncanny double of the younger Guerrero; his finger work was so unusually powerful, it was clear he had spent years using the exercises Guerrero had taught him. In interviews, Gould would talk about the importance of learning a piece of music on paper before performing it, but he would say it all as if it were his own idea. Strangest of all, Gould played particular pieces of music as Guerrero had always imagined them in his mind, but with a verve and style that he could never have matched. It was as if his former protégé had internalized the essence of his style and transfigured it into something greater.

As a child, Glenn Gould intuited his great dilemma. He had an uncanny ear for music; he was so responsive that he could pick up the nuances of another piano

player and reproduce them after a single hearing. At the same time, he knew that he was a peculiar young man with very distinct tastes. He had the ambition to become a master performer. If he listened too closely to teachers and other performers and picked up their ideas or styles, he would lose his sense of identity in the process. But he also needed knowledge and mentorship. This dilemma became particularly acute with Alberto Guerrero, who was a charismatic teacher. It is often a curse to learn under someone so brilliant and accomplished—your own confidence becomes crushed as you struggle to follow all of their great ideas. Many pianists become lost in the shadow of their illustrious mentors and never amount to anything.

Because of his ambition, Gould found his way to the only real solution to this dilemma. He would listen to all of Guerrero's ideas about music and try them out. In the course of playing, he would subtly alter these ideas to suit his inclinations. This would make him feel that he had his own voice. As the years went by, he made this differentiation between himself and his instructor more pronounced. Because he was so impressionable, over the course of the apprenticeship he had unconsciously internalized all of the important ideas of his mentor, but through his own active engagement he had managed to adapt them to his individuality. In this way, he could learn and yet incubate a creative spirit that would help set him apart from everyone else once he left Guerrero.

As apprentices, we all share in this dilemma. To learn from mentors, we must be open and completely receptive to their ideas. We must fall under their spell. But if we take this too far, we become so marked by their influence that we have no internal space to incubate and develop our own voice, and we spend our lives tied to ideas that are not our own. The solution, as Gould discovered, is subtle: Even as we listen and incorporate the ideas of our mentors, we must slowly cultivate some distance from them. We begin by gently adapting their ideas to our circumstances, altering them to fit our style and inclinations. As we progress we can become bolder, even focusing on faults or weaknesses in some of their ideas. We slowly mold their knowledge into our own shape. As we grow in confidence and contemplate our independence, we can even grow competitive with the mentor we once worshipped. As Leonardo da Vinci said, "Poor is the apprentice who does not surpass his Master."

4. Create a back-and-forth dynamic

In 1978, a promising lightweight boxer named Freddie Roach traveled to Las Vegas with his father in search of a trainer that could elevate him to the next level. And as previously narrated in chapter 1 (see here), Freddie and his father quickly settled on Eddie Futch, one of the most legendary boxing coaches in the field.

Futch had a magnificent résumé. As a young man he had sparred with Joe Louis. Barred from turning professional because of a heart murmur, he became a trainer, working later with some of the most illustrious heavyweights, including Joe Frazier. He was a quiet, patient man who knew how to give precise instructions; he was a master at improving a fighter's technique. Under his guidance, Roach advanced quickly, winning his first ten bouts.

Soon, however, Roach began to notice a problem: in training he listened intently to what Futch had to say, and put it into practice with relative ease. But in actual bouts, the moment he exchanged blows with his opponent, he would suddenly throw out all the technique he had learned and fight on pure emotion. Sometimes this worked, but he took a lot of blows, and his career started to sputter. What surprised him several years into the process was that Futch did not really seem to notice this problem of his. With so many fighters in his stable, he tended to keep his distance; he did not give much personalized attention.

Finally, in 1986, Roach retired. Living in Vegas and moving from one bad job to another, in his off-hours he began to frequent the gym where he had trained. Soon he was giving advice to fighters and helping out. Without getting paid, he became a de facto assistant to Futch, even directly training a few of the fighters himself. He knew Futch's system well and had internalized many of the techniques he taught. He added his own wrinkle to the training sessions. He took the mitt work—the large padded gloves that a trainer uses in the ring to practice various punches and combinations with his fighter—to a higher level, creating a longer and more fluid practice session. It also gave Roach a chance to be more involved in the action, something he missed. After several years he realized he was good at this and so left Futch to begin his own career as a trainer.

To Roach, the sport was changing. Fighters had become faster, but trainers such as Futch still promoted a rather static style of boxing that did not exploit these changes. Slowly, Roach began to experiment with the whole training dynamic. He expanded the mitt work into something larger, a simulation of a fight that could go on for several rounds. This allowed him to get closer to his fighters, to literally feel their full arsenal of punches over time, to see how they

moved in the ring. He began to study tapes of opponents, looking for any kind of pattern or weakness in their style. He would devise a strategy around this weakness and go over it with his boxers in the mitt work. Interacting so closely with his fighters, he would develop a different kind of rapport than what he had with Futch—more visceral and connected. But no matter the boxer, these moments of connection would inevitably fade in and out. As they improved, the fighters would begin to tune him out, feeling like they already knew enough. Their egos would get in the way and they would stop learning.

Then, in 2001, an entirely different kind of fighter came through the doors of Roach's gym in Hollywood, California. His name was Manny Pacquiao, a 122-pound left-handed featherweight fighter, who had had some success in his native Philippines but was looking for a trainer in the States, someone who could elevate his game to another level. Many trainers had already passed on Pacquiao—they watched him work out and spar, and he was impressive, but there was no money to be made from someone in such a lightweight division.

Roach, however, was a different breed of trainer—he immediately went to mitt work with Pacquiao, and from the first punch he knew something was different about this fighter. It had an explosive, intense quality, a snap unlike any another fighter's. The other trainers had only watched and could not feel what he now felt. After one round Roach was certain he had found the boxer he had always been looking to train, one who could help initiate the new style of boxing he wanted to introduce. Pacquiao was equally impressed.

To Roach, Pacquiao had the material to be an unbeatable fighter, but he was somewhat one-dimensional: he had a great left hand and not much else. He was constantly looking for the knockout blow, to the exclusion of everything else. Roach's goal was to transform Pacquiao into a multi-dimensional beast in the ring. He began with heavy mitt practice, trying to develop a powerful right hand and more fluid footwork. What immediately struck him was the intensity with which Pacquiao focused on his instructions and how quickly he caught on. He was eminently teachable, and so the progress was more rapid than it had ever been with any other fighter. Pacquiao seemed to never tire of training or to worry about overdoing it. Roach kept waiting for the inevitable dynamic in which the fighter would begin to tune him out, but this never came. This was a boxer he could work harder and harder. Soon, Pacquiao had developed a devastating right hand, and his footwork could match the speed of his hands. He began to win fight after fight, in impressive fashion.

As the years went by, the relationship began to evolve. In their mitt work, Pacquiao would adjust or improve upon the maneuvers Roach had been developing for the next bout. He gave input on Roach's strategy, altering it on

occasion. Pacquiao had gained a sixth sense for what Roach was getting at and could take his thinking further. On one occasion Roach watched Pacquiao improvise a maneuver on the ropes in which he ducked out and attacked a fighter from an angle instead of head-on. To Roach, this was a move that made instant sense. He wanted to develop this further into a whole new possible style of fighting. He was now learning almost as much from Pacquiao. The previous trainer-fighter relationship had now morphed into something interactive and alive. To Roach, this meant that they could move past the seemingly inevitable plateau for fighters in which it all became stale and opponents would catch on to their weaknesses.

Working together in this way, Roach was able to transform this one-dimensional, relatively unknown fighter into perhaps the greatest boxer of his generation.

In theory, there should be no limit to what we can learn from mentors who have wide experience. But in practice, this is rarely the case. The reasons are several: at some point the relationship can become flat; it is difficult for us to maintain the same level of attention that we had in the beginning. We might come to resent their authority a little, especially as we gain in skill and the difference between us becomes somewhat less. Also, they come from a different generation, with a different worldview. At a certain point, some of their cherished principles might seem a bit out of touch or irrelevant, and we unconsciously tune them out. The only solution is to evolve a more interactive dynamic with the mentor. If they can adapt to some of your ideas, the relationship becomes more animated. Feeling a growing openness on their part to your input, you are less resentful. You are revealing to them your own experiences and ideas, perhaps loosening them up so their principles don’t harden into dogma.

Such a style of interaction is more in tune with our democratic times and can serve as something of an ideal. But it should not go along with a rebellious attitude or a lessening in respect. The dynamic sketched out earlier in this chapter remains the same. Like Pacquiao, you bring to the relationship the utmost in admiration and your total attention. You are completely open to their instruction. Gaining *their* respect for how teachable you are, they will fall a bit under your spell, as Roach did with Pacquiao. With your intense focus, you improve in your skill levels, giving you the power to introduce more of yourself and your needs. You give them feedback to their instruction, perhaps adjust some

of their ideas. This must begin with you, as you set the tone with your hunger to learn. Once a back-and-forth dynamic is sparked, the relationship has almost limitless potential for learning and absorbing power.

REVERSAL

It is never wise to purposefully do without the benefits of having a mentor in your life. You will waste valuable time in finding and shaping what you need to know. But sometimes you have no choice. There is simply no one around who can fill the role, and you are left to your own devices. In such a case, you must make a virtue of necessity. That was the path taken by perhaps the greatest historical figure to ever attain mastery alone—Thomas Alva Edison (1847–1931).

From a very early age Edison became used to doing things for himself, by necessity. His family was poor, and by the age of twelve he had to earn money to help his parents. He sold newspapers on trains, and traveling around his native Michigan for his job, he developed an ardent curiosity about everything he saw. He wanted to know how things worked—machines, gadgets, anything with moving parts. With no schools or teachers in his life, he turned to books, particularly anything he could find on science. He began to conduct his own experiments in the basement of his family home, and he taught himself how to take apart and fix any kind of watch. At the age of fifteen he apprenticed as a telegraph operator, then spent years traveling across the country plying his trade. He had no chance for a formal education, and nobody crossed his path who could serve as a teacher or mentor. And so in lieu of that, in every city he spent time in, he frequented the public library.

One book that crossed his path played a decisive role in his life: Michael Faraday's two-volume *Experimental Researches in Electricity*. This book became for Edison what *The Improvement of the Mind* had been for Faraday. It gave him a systematic approach to science and a program for how to educate himself in the field that now obsessed him—electricity. He could follow the experiments laid out by the great Master of the field and absorb as well his philosophical approach to science. For the rest of his life, Faraday would remain his role model.

Through books, experiments, and practical experience at various jobs, Edison gave himself a rigorous education that lasted about ten years, up until the time he became an inventor. What made this successful was his relentless desire to learn through whatever crossed his path, as well as his self-discipline. He had

developed the habit of overcoming his lack of an organized education by sheer determination and persistence. He worked harder than anyone else. Because he was a consummate outsider and his mind had not been indoctrinated in any school of thought, he brought a fresh perspective to every problem he tackled. He turned his lack of formal direction into an advantage.

If you are forced onto this path, you must follow Edison's example by developing extreme self-reliance. Under these circumstances, you become your own teacher and mentor. You push yourself to learn from every possible source. You read more books than those who have a formal education, developing this into a lifelong habit. As much as possible, you try to apply your knowledge in some form of experiment or practice. You find for yourself second-degree mentors in the form of public figures who can serve as role models. Reading and reflecting on their experiences, you can gain some guidance. You try to make their ideas come to life, internalizing their voice. As someone self-taught, you will maintain a pristine vision, completely distilled through your own experiences—giving you a distinctive power and path to mastery.

> *To learn by example is to submit to authority. You follow your master because you trust his manner of doing things even when you cannot analyze and account in detail for its effectiveness. By watching the master and emulating his efforts…the apprentice unconsciously picks up the rules of the art, including those which are not explicitly known to the master himself.*
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> —MICHAEL POLANYI